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PATENT IBM-178 (YO998-086)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Angelopoulos, et al.
Serial Number	:	09/036,458
Filing Date	:	March 6, 1998
Examiner	:	T.Yoon
Group Art Unit	:	1714
For	:	METHODS OF PROCESSING AND SYNTHESIZING ELECTRICALLY CONDUCTIVE POLYMERS AND PRECURSORS THEREOF TO FORM ELECTRICALLY CONDUCTIVE POLYMERS HAVING HIGH ELECTRICAL CONDUCTIVITY

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TO: The Honorable Board of Patents
Appeals and Interferences
Washington, D.C. 20231

Sir:

APPEAL BRIEF

This brief is submitted in support of Applicants' appeal of the Examiner's rejections of the claims in the above-identified application.

1. Real Party in Interest

The party, et al., listed in the above-identified caption are the real parties in interest in this matter. The application has been assigned by these individuals to *International Business Machines Corporation*, Armonk, NY which has authorized this appeal.

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2. **Related Appeals and Interferences**

There are no other appeals or interferences pending that relate to this case.

3. **Status of Claims**

The status of the claims in this case is as follows:

Originally filed: claims 1- 19
Pending: 1 - 21
Cancelled: none
Appealed: 1 - 21

4. **Status of Amendments**

There was a single amendment filed subsequent to the final rejection.

5. **Summary of the Invention**

The present invention relates to a method of processing electrically conducting polymers* or precursors** thereof, or synthesizing electrically conducting polymers or precursors thereof (for example, monomers) in appropriate solvents (for example, fluorine-containing solvents) which effectively *solvate* the polymer chains so as to result in polymers having high electrical conductivity, good solubility and good solution stability. The application discloses that conductivity of the polymers claimed is dependent upon the morphology of same. The morphology of the polymer depends upon how the polymer is processed. The processing is done using the selected fluorine-containing solvents resulting in higher levels of conductivity. The beneficial conductivity effects obtained resulting from the use of fluorinated solvents are illustrated in Tables 1 and 2, inserted by amendment dated July 23, 1999 on page 22, line 12 of the specification.

*The doped or conducting form of the polymer is referred to as the "conducting polymer" and ** the non-doped or non-conducting form of the polymer is referred to as the "precursor to the electrically conducting polymer." See page 1, lines 17 - 20.

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6. **Issue Presented for Appeal**

Whether claims 1 - 21 are anticipated by, or in the alternative, are obvious over references cited by the Examiner as set forth in specific detail below.

7. **Grouping of Claims**

For each ground of rejection asserted by the Examiner in this matter, which appellants contest and which applies to a group of one or more of the claims designated in paragraph 3 above, the Board is authorized to select a single claim from the group, preferably the claim broadest in scope, and is requested to decide the appeal as to the ground of rejection on the basis of that claim alone.

Claims 1, 6, 7, 12, and 20.

8. **Argument**

As to 35 U.S.C. §112, first paragraph: There are no rejections of the claims under appeal on this section of the statute.

As to 35 U.S.C. §112, second paragraph: There were rejections of claims 12, 15 and 16 under appeal on this section of the statute in the most recent Official Action. These rejections related to improper recitations in the claims examined. Applicants have corrected these objections of the Examiner and it is assumed that these were properly addressed in the amendment to the satisfaction of the Examiner. Any errors not corrected during the course of the prosecution of this patent will be corrected upon receipt of a favorable decision from this Board. The Examiner's objections are merely matters of form relating to misspellings or use of trademarks, etc., and do not affect the substance of the invention.

As to 35 U.S.C. §102(b)/35 U.S.C. §103(a) There are rejections of the claims under appeal as anticipated by or obvious over a number of references based in the alternative on these sections of the statute.

Claim 1, which is the broadest claim in the application reads as follows:

--1. A method comprising processing a polymer selected from the group consisting of a precursor to an electrically conductive polymer and an electrically conductive polymer in a solvent comprising a fluorinate solvent, said polymer in said solvent characterized by a dependence of the electrical conductivity of said electrically conductive polymer on the concentration of said polymer in said solvent, said concentration being selected to substantially maximize said electrical conductivity.--

The support for the language "said polymer in said solvent characterized by a dependence of the electrical conductivity of said electrically conductive polymer on the concentration of said polymer in said solvent, said concentration being selected to substantially maximize said electrical conductivity" is found throughout the specification, but specifically on page 20, lines 14 - 26.

The excerpt of claim 1 set forth above defines two polymer species in Markush form, i.e., 1. a precursor to an electrically conductive polymer or 2. an electrically conductive polymer, in a solvent (comprising a fluorinate solvent) wherein the polymer/solvent is characterized by a dependence, that is, a functional relationship between the electrical conductivity of the electrically conductive polymer and its concentration in the solvent. The object of the invention is to select a particular concentration of polymer in solvent to maximize its electrical conductivity. None of the prior art references cited by the Examiner, alone or in combination, recognizes the unexpected result of maximum electrical conductivity being a function of it concentration in the solvent. Obviously, depending upon the polymer and the solvent, different concentrations will apply when developing the maximum electrical conductivity. The specification on page 2, lines 6 - 22 discloses the prior art problems encountered by the polymers of the types mentioned in the references cited by the Examiner. Processability and solubility are major areas of concern not addressed by the prior art references.

The Examiner has applied a number of references to various claims, but has not properly applied the references to Applicants' claims. For example, the Examiner states in both Official Actions issued by him to Applicants:

1. "Claims 1 - 5, 9 - 12, 17 - 19 and 21 are rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over Jonas et al. (US 4,902,573). Jonas teaches the instant invention at col. 5, lines 16 - 41 wherein the use of fluorinated hydrocarbons and a mixture of (sic) thereof are taught."

2. "Claims 1 - 4, 9 - 12, 17 and 18 are rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over Traynor et al. (US 4,629,798). Traynor, et al. teaches a solution of polypyrroles in fluorinated hydrocarbons and films thereof at col. 7, lines 35 - 51."

3. "Claims 1 - 4, 6, 7, 9 - 12, 16 to 19 are rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over Ikenaga, et al. (US 4,772,421). Ikenaga, et al. teaches the instant polymerization in Examples 6 - 12. Conductive precursors are taught at col. 3, lines 8 - 21."

4. "Claims 1 - 4, 9 - 15, 17 to 19 are rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over Tan, (US 5,863,658). Tan teaches solutions of doped polyanilines in various solvents such as hexafluoroisopropanol and blends thereof at col. 1 line 63 to col.2, line 6."

5. "Claims 1 - 4, 6, 7, 9 - 18 are rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over EP 0315514. EP 0315514 teaches the instant polymerization of aniline in presence of mixed solvents such as NH_4F and HF in abstract."

Anticipation as found in 35 U.S.C. §102 requires that each and every element of the claim must be disclosed in a single prior art reference. Applicants respectfully submit that the specificities of the 5 disclosures cited by the Examiner in this case do not rise to the level required for each to qualify as an appropriate reference with respect to Applicant's invention.

> *Further, the reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it. (Citations omitted)*
> *In re Lonnie T. Spada et al., 15 USPQ 2d 1655 (Fed. Cir. 1990).*

None of the references cited by the Examiner as set forth above in paragraphs 1 - 5 meet this standard. The references disclose diverse pieces of information that relate to the general field of polymer chemistry, solvents and other disciplines which provide some information that borders on the field of Applicants' invention, but the references all fall far short of meeting the standard of *In re Spada, supra.* The references do not disclose each and every element of the claimed subject matter found in claims 1 - 21. Therefor the rejection is improper from the perspective of "anticipation" and should be dismissed by this Board.

With respect to the rejections pursuant to 35 U.S.C. §103(a), the Examiner has not provided a suitable basis for his rejections of the claims with respect to each of the references cited. There is no specific application of any reference cited by the Examiner to the claims. (See paragraphs 1 - 5 above for the exact wording of the rejections.)

In their discussion of the claims pursuant to 35 U.S.C. §103(a), Applicants ask this Honorable Board to consider by analogy the concept of "Notice Pleading" in civil matters in the Federal Courts. The "Notice Pleading" practice places a burden on the respondent to use common sense and logic in situations where the pleadings are not artfully drawn. The "due process" standard applies and if the respondent can infer the essence of the grievance, he/she is deemed to have had proper notice. Applicants concede that the same approach applies in prosecution of applications for Letters Patent. If the Applicant can conclude the basis for the rejections, even if not artfully drawn, he/she has the obligation to respond.

Following standard Patent Office procedure, the Patent Examiner, in a prosecution of an application for Letters Patent, has the initial burden of producing a factual basis for a rejection under 35 U.S.C. §103(a). This means that the Examiner must establish a case to support obviousness, theoretically a *prima facie* case. This means that when the Examiner has made his obviousness rejection in such specific terms as to detail the basis for the rejection, (i.e., the *prima facie* case), the burden then falls on the Applicants to come forward with a rebuttal to establish facts supporting the opposite conclusion. It is respectfully submitted that the Examiner has not met his initial burden in applying the references with respect to 35 U.S.C. §103(a). In this case, the Examiner in supporting his obviousness rejection, must provide Applicants with more than the citation of a reference and an abbreviated statement disclosing what the reference teaches. This is clearly what the Examiner has done in the instant case.

There is no reference cited by the Examiner which teaches that the concentration of the electrically conducting polymer is selected to substantially maximize said electrical conductivity. Thus no one prior to Applicants has recognized that phenomenon. The

Examiner states in applying, e.g., the Jonas reference teaches the instant invention at col. 5, lines 16 - 41 wherein the use of fluorinated hydrocarbons and a mixture of (sic) thereof are taught. This statement does not establish that Jonas recognized the feature that embodies Applicants invention, the relationship of concentration and electrical conductivity.

This reference is cited by way of illustration. The other rejections are similarly vague and indefinite. There is not a sufficient discussion applying the reference to the claims of the application.

> The *prima facie* case is a procedural tool which, as used in the patent examination (as by courts in general), means not only that the evidence of the prior art would reasonably allow the conclusion the Examiner seeks, but also that the prior art compels such a conclusion if the applicant produces no evidence or argument to rebut it...
>
> The court has accepted the PTO's practice of basing rejections on section 102 or 103 in the alternative, provided the applicant was fully apprised of the all grounds of rejections. *In re Lonnie T. Spada, supra* at 1655.

Applicants contend that the Examiner, pursuant to the *Spada* holding recited above, has not provided sufficient information in applying the references to the claims to enable Applicants to make a meaningful response.

In his rejections of the claims, the Examiner is improperly picking and choosing.

> The ever present question in cases within the ambit of 35 U.S.C. § 103 is whether the subject matter as a whole would have been obvious to one of ordinary skill in the art following the teachings of the prior art at the time the invention was made. It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. (Emphasis in original) In re Wesslau 147 U.S.P.Q. 391, 393 (CCPA 1965)

This holding succinctly summarizes the Examiner's error in his application of references in this case, because, as this Board will notice in reviewing the rejections as detailed in paragraphs 1 - 5 above, he did in fact select and choose so much of the Jonas, et al., Traynor, et al., Ikenaga, et al., Tan and EP disclosures to support his position and did not cover completely in the Office Action, the full scope of what these varied disclosure references fairly suggest to one skilled in the art.

According to 37CFR 1.1206(8)(C)(iv), for each rejection under 35 U.S.C. 103, the argument in an Appeal brief shall specify the errors in the rejection and, if appropriate, the specific limitations in the rejected claims which are not described in the prior art relied on in the rejection, and shall explain how such limitations render the claimed subject matter unobvious over the prior art.

It is here that Applicants are stymied in their efforts to specify the errors in the rejection. They have pointed out that the relationship of concentration and electrical conductivity as recited in claim 1 provides unexpected results. The specific limitations of electrical conductivity as a function of concentration of electrically conductive polymer in fluorinated solution are present in the rejected claims. This is not described in the prior art. By virtue of the Examiner not applying the references to the claims with any degree of specificity, Applicants cannot used the Exxaminer's basis for rejection to properly explain how the limitations they have inserted into the claims render the claimed subject matter unobvious over the prior art.

The Examiner has not explained his basis for asserting the obviousness of the invention. The Rules of Practice forbid general arguments that all limitations are not described in a single reference. However, that provision assumes that the Examiner has made a detailed application of the reference pointing out the teaching of the disclosure and how the non-disclosed aspect of the invention would have been obvious to a person skilled in the art at the time the invention was made.

As a matter of form, claim 12 contains some duplication in the recitation of the fluorinated solvents. Upon final resolution of this matter, Applicants will delete the repeated elements of the claim. This matter of form in no way affects the substance of the claims or the arguments presented herein.

In view of the arguments, allowance of this case is warranted. Such favorable action is respectfully solicited.

Respectfully Submitted,

Thomas A. Beck
Registration No. 20,816
26 Rockledge Lane
New Milford, CT 06776
(860) 354-0892

I hereby certify that this paper is being deposited on the date indicated below with the U.S. Postal Service as First Class Mail addressed to Commissioner of Patents & Trademarks, Washington, D.C. 20231

Signature: _____ Date: August 8, 2000
Name: Thomas A. Beck

9. **APPENDIX CLAIMS**

The claims pending in this case which are under appeal are claims 1 – 21 which read as follows:

1. A method comprising:
processing a polymer selected from the group consisting of a precursor to an electrically
conductive polymer and an electrically conductive polymer in a solvent comprising a fluorinate solvent, said polymer in said solvent characterized by a dependence of the electrical conductivity of said electrical conductive polymer on the concentration of said polymer in said solvent, said concentration being selected to substantially maximize said electrical conductivity.

2. A method according to claim 1 wherein said polymer is in a solution of said fluorinated solvent and less than about 20 weight % of said solution.

3. A method according to claim 1 wherein said precursor polymers to said electrically conductive polymers are selected from the group consisting of: polyparaphenylenes, polyparaphenylenevinylenes, polyanilines, polyazines, polythiophenes, polythianaphthenes, polyphenylenesulfides, polyfuranes, polypyrroles, polyselenophenes, polyacetylenes and combinations thereof and copolymers thereof.

4. A method according to claim 1 wherein said processing is selected from the group consisting of synthesizing said polymer in said solvent and solvating said polymer in said solvent.

5. A method according to claim 1 wherein said polymer is a precursor to an electrically conductive polymer and exposed to said solvent while said precursor is exposed to a dopant.

6. A method of forming a polymer selected from group consisting of a precursor to an electrically conductive polymer and an electrically conductive polymer comprising: exposing a solution of polymerizable units to a solvent comprising a fluorinated solvent during polymerization to form said polymer in said solvent, characterized by a dependence of the electrical conductivity of said electrical conductive polymer on the concentration of said polymer in said solvent, said concentration being selected to substantially maximize said electrical conductivity.

7. A method comprising:
polymerizing monomers in the presence of a solvent comprising a fluorinated solvent to form an electrically conductive polymer, during neutralization of said electrically conductive polymer to an undoped form to form a deaggregated nondoped form of said electrically conductive polymer said polymer in said solvent characterized by a dependence of the electrical conductivity of said electrical conductive polymer on the concentration of said polymer in said solvent, said concentration being selected to substantially maximize said electrical conductivity.

8. A method according to claim 1 wherein said solvent comprises a combination of said fluorinated solvent and a nonfluorinated solvent.

9. A method according to claim 1 wherein said polymer is in a solution and is less than about 5 weight percent of said solution.

10. A method according to claim 6 wherein said polymerizable units are selected from the group consisting of one or more of monomers and oligomers.

11. A method according to claim 1 wherein said polymer is in a form selected from the group consisting of a solution and a solid state.

12. A method according to claim 1 wherein said fluorinated solvent is selected from the group consisting of:

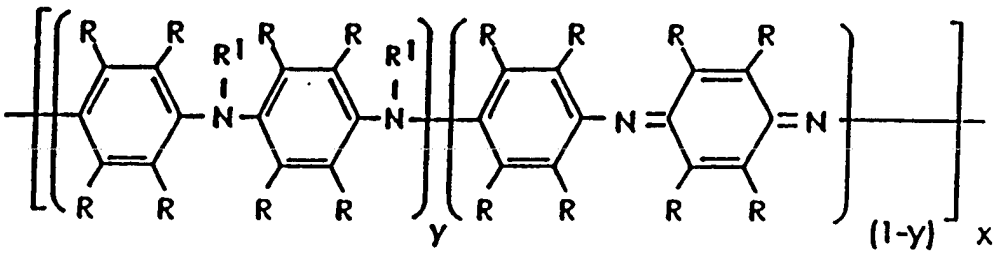
hexafluoroisopropanol, tetrafluoropropanol, pentafluoropropanol, hexafluorophenylpropanol, perfluorobutyl alcohol, octafluoropentanol, hexafluoro-2-propanol, pentafluoro-1-propanol, tetrafluorophenol, trifluorophenol, difluorophenol, tetrafluoro-1-propanol, 4-(trifluoromethyl)benzyl alcohol, 2,2,2- trifluoroethanol, 2,4,5 trifluorophenol, 2,4 difluorobenzyl alcohol, 2,4 difluorophenol, 4-fluorobenzyl alcohol, 2,2,3,3,3-pentafluoro-1-propanol, 2-(perfluorobutyl)ethanol, 2-(perfluorohexyl)ethanol, 2-(perfluorooctyl)ethanol, 2-(perfluorodecyl)ethanol, 2-perfluoro-3-methylbutyl)ethanol, 1H,1H,3H-tetrafluoro-1-propanol. 1H,1H,5H-octafluoro-1-pentanol, 1H.1H.7H-dodecafluoro-1-heptanol, 1H.1H.9H-hexadecafluoro-1-nonanol, 2H-hexafluoro-2-propanol , 1H,1H,3H-hexafluoro-2-butanol: trifluoroacetic acid, perfluoropropanoic acid, perfluorobutanoic acid, perfluoropentanoic acid, perfluorohexanoic acid, perfluorohepatanoic acid, perfluorooctanoic acid, perfluorononanoic acid, perfluorodecanoic acid, 3H-tetrafluoropropanoic acid, 5H-octafluoropentanoic acid, 7H-dodecafluoropentanoic acid, 9H-hexadecafluorononanoic acid, an amide of such a fluorine-containing carboxylic acid, trifluoromethansulfonic acid, heptadecafluorooctanesulfonic acid, perfluorobenzene, hexametaxylene, polyfluoroaromatic compounds, polyfluorotributylamine, perfluorotripropylamine, polyfluorotrialkylamine compounds, perfluorohexane, perfluorooctane, (perfluoro-n-octyl) ethane, perfluoro-(2,3,5-trimethylhexane), polyfluoroalkane compounds, (perfluoro-n-octyl)ethylene, polyfluoroolefin compounds, perfluorocyclohexane, perfluorodecalin, polyfluorocycloalkane compounds, perfluoro-(2-butyltetrahydrofuran), polyfluorocyclic ether compounds, perfluoro-(2-butyltetrahydrofuran), polyfluorocyclic ether compounds, trichlorotrifluoroethanol, 1,3-dichloro- 1,1,2,2,3-pentafluoropropane, 1,1-dichloro-2,2,3,3,3-pentafluoropropane, chlorofluorohydrocarbons, 1,1,2-trichloro-1,2,2-trifluoroethane, perfluoro (2-butylhydrofuran), perfluorohexane,

perfluoro(2-butyl tetrahydrofuran), 1,2,2-trichloro-1,2,2-trifluoroethane, perfluoro(2-butyltetrahydrofuran), perfluorohexane, 1,1,2-trichloro-1,2,2 trifluoroethane, perfluoro(2-butyltetrahydrofuran), hexafluorobenzene, benzorifluoride, bisrifluoromethylbenzene, pentafluorobenzene, 1,3-bis(trifluoromethyl)benzene, 1,4-bis(trifluoromethyl)benzene, perfluorodecalin, perfluorocyclohexane. perfluoro(1,3,5-trimethylcyclohexane), fluorine-containing alkylamine perfluorotributylamine, perfluorotripropylamine, a fluorine-containing cyclic ether, perfluoro(2-butyltetrahydrofuran), a fluorine-containing polyether, a bis(heptafluoroisopropyl)ketone, perfluorohexane, methyltrifluoroacetate, ethyltrifluoroacetate, butylpentafluoro propionate, trichlortrifluoroethane, monofluorotrichloromethane, fluorine substituted ketones, fluorine substituted esters, fluorine substituted amides, fluorine substituted ethers, fluorine substituted aromatic hydrocarbon, fluorine-substituted aliphatic hydrocarbon, 1,1,2-trichloro-1,2,2-trifluoroethane, 1,l,2,2-tetrachloro-1,1-difluoroethane, (trifluoromethyl)benzene, 1,3-bis(trifluoromethyl)benzene, 1,1,2-trifluorotrichloroethane, 1,2-difluorotetrachloroethane, hexafluorometaxylene, 1,1,2,3,4-hexafluorotetrachlorobutane, octafluorodichlorobutane, 1,1,2-trifluoro-1,2,2-trichloroethane, 1,2-difluoro-1,1,2,2-tetrafluoroethane, fluorohalogenides, perfluoroalkanes, perfluoroalkenes, cyclic fluoride compounds, perfluorohydrides, perfluorocarboxylice acids, perfluoroketones, perfluoroaldehydes, perfluoroalcohols, perfluoroethers, amine fluorides, perfluorothiols, perfluorosulfonic acids, vinvl fluoride, vinvlidene fluoride, trifluororethylene, chlorotrifluororethylene, 1,2-difluoroethylene, tetrafluoroethylene, hexafluoropropylene, perfluoror(methyl vinyl) ether, perfluoro(ethyl vinyl) ether, perfluoro (propyl vinyl) ether, perfluoro(1,3-dioxole), perfluoro(2,2-dimethyl-1,3-dioxole), perfluorotoluene, perfluorocyclohexane, perfluorodimethylcyclohexane, perfluoro-methylcyclohexane, perfluorooxylene, perfluorobenzene, perfluorodecalin, perfluorodecane, perfluorohexane, perfluorooctane, perfluorodecane, trifluorotoluene, pentafluorotoluene, dichlorodifluoromethane, 1,1-dichlorotetrafluoroethane, 1,2-

dichlorotetrafluoroethane, 1-chloro-1,1-fluoroethane, 1-chloroheptafluoropropane, 1,1,1,2,2-pentafluoropropane, perfluorobutane, 2,3-di-chlorooctafluorobutane 2,2,3,3-tetrafluorobutanebutane, 1,1-dichloro-1-fluoroethane, 1,2-dichlorotetrafluoroethane, perfluoroisooctane, perfluorotributylamine, perfluoroheptane, perfluorinated 2-butyl tetrahydrofuran perfluorohexane, perfluorotributylamine, perfluorotriamylamine, fluorinated alkenes, pentafluorostyrene, octafluorostyrene, perfluoro-1,4-pentadiene, perfluoro-1,6-heptadiene, 3,5-bis(trifluoromethyl)styrenes, fluorinated acrylates and methacrylates, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl acrylate, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl methacrylate, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-nonadecafluorodecyl methacrylate 1,2,2,3,3,4,4,5,5,6,6-undecafluorocyclohexylmethyl acrylate, 1,2,2,3,3,4,4,5,5,6,6-undecafluorocyclohexylmethyl acrylate. 1,2,2,3,3,4,4,5,5,6,6-decafluoro-4-trifluoromethylcyclohexylmethyl acrylate. perfluorohexyl acrylate, perfluorobutyl acrylate, perfluorodecyl acrylate, 2,2,2-trifluoroethyl acrylate, 2,2,2-trifluoroethyl methacrylate, 1,1,1,3,3,3-hexafluoro-2-propyl acrylate,
$C_8F_{17}SO_2N(n\text{-}C_4H_9)CH_2O_2C - CH{=}CH_2$, trifluorinated alkyl acrylonitriles, trifluoromethyl acrylonitrile, perfluoroalkylvinyl ethers, perfluorobutyl vinyl ether, pentafluorovinyl ether.

13. A method according to claim 1 wherein said polymer is a polyaniline.

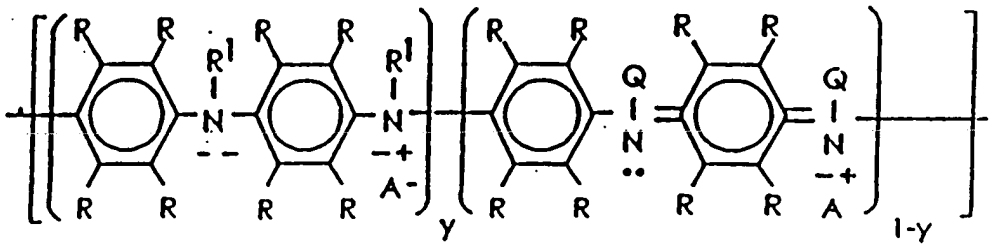
14. A method according to claim 1 wherein said polymer is polyaniline having structural formula:



wherein each R can be H or any organic or inorganic radical; each R can be the same or different;

wherein each R^1 can be H or any organic or inorganic radical, each R^1 can be the same or different; wherein $x \geq 1$ has a value of from about 0 to about 1.

15. A method according to claim 1 wherein said polymer is a polyaniline having structural formula:



wherein each R can be H or any organic or inorganic radical; each R can be the same or different;

wherein each R^1 can be H or any organic or inorganic radical, each R^1 can be the same or different; $x \geq 1$; Q^+ is a cation and $A\geq$ is anion; y has a value of from about 0 to about 1.

17. A method according to claim 1 further including forming from said polymer an object selected from the group consisting of a film, a fiber, and a structural part.

18. A method according to claim 1 wherein an electrically conducting polymer is formed having a level of electrical conductivity thereof which is varied by varying the
concentration of said polymer in solution.

20. A method comprising providing a solution of emeraldine base and a 50/50 mixture of hexafluoroisopropanol / hexafluorophenylpropanol said emeraldine base being greater than 3% of said solution; adding a dopant to said emeraldine base to a conductive from of said emeraldine base said dopant is selected from the group consisting of camphorsulfonic acid and acrylamido propane sulfonic acid; said conductive form has a electrical conductivity of greater than about 200 s/cm.

21. The method of claim 12 further including non-fluorinated solvents selected from the group consisting of nonfluorinated alcohols, phenols, esters, ethers, ketones, amides, amines, alkanes, cyclic alkanes, alkenes, aromatics, and so on such as anisole, benzyl alcohol, cyclohexanone, ethyl lactate, ethyl acetate, diethyl ketone, diethyl malonate, m-cresol, phenol, N-methylpyrrolidinone, N-dimethylformamide, propylene glycol dimethyl ether acetate, isopropanol, ethanol, water, dimethylpropylene urea, gamma butyrolactone, diethylether, benzene, toluene, chloroform, tetrahydrofuran, heptanone, pentanone, and pentanones.